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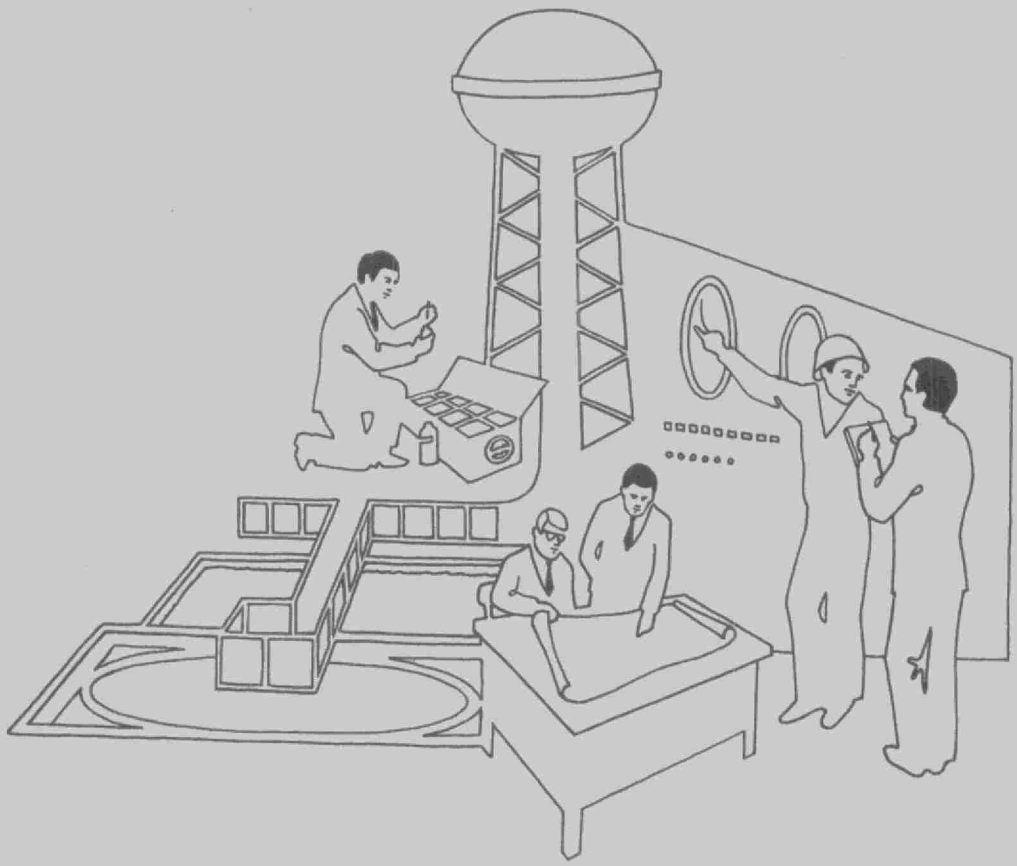

1970 RECREATIONAL LAKES PROGRAM

BASS LAKE

in the

COUNTY OF SIMCOE

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Division of Sanitary Engineering
District Engineers Branch

June 1971

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SUMMARY AND CONCLUSIONS

A water quality study of Bass Lake near Orillia in the County of Simcoe was performed during and subsequent to the height of the 1970 summer tourist season.

The bacteriological results showed that the total coliform and fecal coliform geometric mean densities were generally below the OWRC criteria for total body contact recreational use during both survey periods. Exceptions, however, occurred during September regarding total coliform content at Stations 17 and 18; these were probably due to a nearby stream.

The fecal streoptococcus results were above the criteria at many stations during both surveys. These high counts may be attributed to natural animal populations in the lake itself and the streams entering the lake along the south-west shore.

The dissolved oxygen content in the surface waters during both surveys met the OWRC criteria for the preservation of warm water biota. A decline was noted only near the bottom and is attributed to the decomposition of settled organic matter on the lake bottom. The discharge of inflowing stream(s) appears to be responsible for different values of dissolved oxygen, temperature and pH at Station 17.

No thermal stratification was observed during each survey. It is believed that wind action was able to cause mixing of lake waters in the lower depths of this shallow lake, thereby breaking down any stratification before it could be firmly established.

The samples analyzed for chemical constituents revealed the surface water to be of satisfactory quality. The water generally had a hardness between 138 and 142 ppm which is quite close to that of Lake Ontario. A decrease in nitrite nitrogen and total phosphorus occurred between both surveys.

INTRODUCTION

As recommended in the report dated March, 1970, on Environmental Management of Recreational Waters in Cottage Areas in Ontario, field surveys were conducted on recreational lakes. In this interdepartmental program, staff of the OWRC would conduct water quality studies, while staff of the Ontario Department of Health's Public Health Engineering Service would conduct investigations of on-shore private sewage disposal systems.

Since the Department of Health had already conducted its investigations on the shoreline of Bass Lake prior to 1970, staff of the OWRC conducted two surveys during the periods of July 5 to 9, and September 24 to 27, 1970.

DESCRIPTION OF LAKE

Bass Lake is located in the Townships of Oro and Orillia, County of Simcoe, some four miles west of the City of Orillia.

This body of water is small, measuring slightly over two miles long and varying in width from one-half mile at the east end to one and one-half miles at the west end. Much of the eastern half of the lake is at least 25 feet deep; from this relatively deep area,

the lake bottom slopes upward to the shore. The deepest section (30 feet) is located about one-half mile from the east shore.

The lake is fed by small streams, some intermittent, located at the south-western end and is drained by the North River in the north-west.

Cottage development has taken place around all shoreline except along the south-western shore. Bass Lake Provincial Park is situated at the south-eastern end.

SAMPLING CONDITIONS

Each survey represented different conditions with respect to recreational use of the lake waters. The July or mid-tourist season (MID) survey was conducted during the height of the tourist season. However, recreational use had declined considerably by the time of the September or post-tourist season (POST) survey. Each survey also included part or an entire weekend.

A record of the air temperature, wind direction and approximate wind velocity during each sampling period was kept by the sampling crew. A summary of this data together with the rainfall recorded at the Muskoka Airport weather station (located just north of Gravenhurst) is found in Table I.

TABLE I

WEATHER CONDITIONS

DATE 1970	AIR TEMPERATURE Avg.	Range	WIND Dir. (°N)	Vel. (mph)	COMMENTS	*RECORDED RAINFALL (in.)
July 4	--	-	--	--		.97
July 5	20	-	250	12		trace
July 6	19	18 - 20	280	2		0
July 7	28	27 - 28	270	10		0
July 8	20	19 - 20	170	5		.06
July 9	25	- -	140	8		.01
Sept. 23	--	-	--	--		0
Sept. 24	20	18 - 22	140	12	slightly overcast	.62
Sept. 25	22	23 - 21	260	5	slightly overcast	0
Sept. 26	18	17 - 18	200	4	overcast	.58
Sept. 27	16	15 - 16	310	6	overcast	.10

* Muskoka Airport Weather Station north of Gravenhurst

FIELD WORK

Water samples were collected for bacteriological and chemical analyses in a laboratory as well as field determinations of temperature, dissolved oxygen and pH be means of electronic instruments. The sampling point locations are shown on the map enclosed in this report. In addition to the foregoing, depth profiles of temperature and dissolved oxygen were studied at various locations in the lake.

During the two surveys, 20 stations were sampled daily at the surface for bacteriological analyses;

depth samples were collected at two of these stations.

A total of 17 stations were sampled during the MID survey at least once for chemical analyses; three of these stations were sampled twice. During the POST survey, four stations which included 12, 2, 4 and 20 were sampled daily for chemical analyses.

The surface bacteriological samples were collected in sterile 250 ml autoclavable polycarbonate bottles from approximately one meter below the water surface. Depth bacteriological samples were collected using sterile 237 ml air syringes by means of a modified "piggy-back" sampler at a depth of one to two meters above the lake bottom. Immediately after collection, the samples were stored in ice for preservation until delivered to a nearby OWRC mobile bacteriological laboratory for analysis.

The chemical samples were collected in two 32-ounce bottles from a depth of about one meter below the surface. Then the samples were either shipped or delivered to the OWRC Laboratory in Toronto for analysis.

LABORATORY ANALYSES OF SAMPLES

All bacteriological samples from the intensive surveys were analyzed for total coliform (TC), fecal coliform (FC) and fecal streptococcus (FS) organisms at the mobile laboratory. The analyses of the samples

took place within 3 to 8 hours after sampling during the MID survey and 2 to 5 hours after sampling during the POST survey. Analyses were performed using the membrane filter technique as specified in "Standard Methods for the Examination of Water and Wastewater:, twelfth edition 1965, APHA, AWWA, WPCF. The only modification was the use of McConkey MF broth in the FC analysis.

The OWRC Laboratory in Toronto analyzed the chemical samples for 15 chemical constituents which included nitrogen and phosphorus determinations.

BACTERIOLOGICAL INTERPRETATION

The bacteriological results were evaluated by staff of the Bacteriology Branch, Division of Laboratories, on the basis of the geometric means of the bacterial counts obtained at each station during the survey. In the statistical analysis of the means, a mean for a station was compared with those of all the other stations on the lake. This comparison was accomplished by graphically comparing the geometric means and 95% confidence limits on the means. In this method, if the confidence limits of two means did not overlap, the two means were significantly different from each other. If the confidence limits of two means overlapped with neither mean included in the overlap, usually the means were significantly different. In all

other cases of overlap there was no significant difference between the means. Comparison of means between stations in one survey, and comparison of means for each of the same stations for the other survey, allowed trends to be determined which facilitated statistical interpolation between stations and surveys. Each station's results were important only as a part of the whole picture.

Simultaneously, all means were compared to the water quality criteria for total body contact recreation as set forth by the OWRC in "Guidelines and Criteria for Water Quality Management in Ontario" (June 1970). These criteria state that recreational waters can be considered impaired when the geometric mean densities exceed any of the following:

1,000 total coliform organisms per 100 ml

100 fecal coliform organisms per 100 ml

20 fecal streptococci organisms per 100 ml

All bacterial concentrations stated subsequently are geometric means of the observations of a survey, except where otherwise specified.

BACTERIOLOGICAL RESULTS

The geometric means of the bacterial counts are presented in Table II and are also shown on the enclosed map. The numerous individual bacterial counts are not tabulated herein.

During the MID survey, the TC and FC at all stations were within the water quality criteria of 1000/100 ml and 100/100 ml, respectively. The TC geometric means ranged from 34/100 ml at Station 2 to a high of 235/100 ml at Station 18. Fecal coliform geometric means were low with a range from 2/100 ml at Stations 1, 2, 15 and 16 to 14/100 ml at Station 13.

The TC results at most stations during this survey did not differ significantly from one another. However, Stations 1 and 2 were significantly lower than some other stations, notably Stations 10, 13, 14, 15 and 18. Regarding FC results, Station 2 was significantly different from Stations 11, 12, 13 and 19, being lower than all of them.

During the MID survey, there were no significant differences between individual stations with regard to FS results. However, over half (14) of the stations were above the criteria of 20/100 ml. The only locations which were below the criteria were Stations 2, 4, 5, 12, 13 and 19. The FS levels varied from a low of 6/100 ml at Stations 4 and 5 to a high of 171/100 ml at Station 10.

The POST survey showed that the TC levels at all stations increased over the MID survey results.

Twelve stations showed a significant increase and two were found to be over the criteria of 1000 TC/100 ml. These were Station 18 at 1543/100 ml and Station 17 at 2700/100 ml; it should be noted, however, that only one result was obtained for Station 12. The TC results varied from 291/100 ml at Station 8 to 2700/100 ml at Station 17.

FC data during the POST survey revealed a decrease in level from July at all stations; however, the change was not significant since counts were low during both surveys. Since no station varied significantly from any other, the lake was homogeneous for FC. Geometric means ranged from 1/100 ml at Stations 1, 2, 5, 6, 7 and 10 to a high of 8/100 ml at Station 17. Thus, the quality of the lake water was well within the criteria of 100 FC/100 ml during this September survey.

The results for FS during the POST survey showed that 8 stations (Stations 12, 4, 7, 8, 16, 18, 19 and 20) were above the criteria of 20/100 ml. Seven of these eight were in the western section of the lake whereas, in July, those stations which were above the criteria were distributed throughout the lake. Many of the stations in the eastern section which had previously been above the criteria decreased to acceptable levels in September. Stations 18, 19 and 20, located along the west shore upstream

of the North River, were found to be significantly higher than most other stations in the lake as well as being above the criteria. The range for FS in the POST survey was from 2/100 ml at Stations 1 and 2 to a high of 209/100 ml at Station 18.

The high FS results may have been a result of natural conditions in Bass Lake. As there were many weedy areas which can harbour an abundance of animal life, the high FS may have been a result of high natural animal populations. Besides the lake itself, another possible source is the stream(s) entering the lake along the south-west shore, particularly that beside Station 17. During the POST survey, Stations 17 and 18 exceeded the 1000 TC/100 ml and Stations 18, 19 and 20 significantly exceeded 20 FS/100 ml. These high counts plus the fact that these stations are in the flow from the streams toward the lake outlet, suggest that the high FS counts are also due to stream inputs.

In September, most of the eastern section of the lake was acceptable for FS while the western section still remained unacceptable. This division was probably due to a backlog of organisms as the lake was being drained by the North River.

DISSOLVED OXYGEN, TEMPERATURE AND pH CONSIDERATIONS

A summary of the field measurements pertaining to the above parameters is found in Table II.

During the MID survey, the surface water temperature varied from 19.2 to 20.2°C, with the lower values occurring in the south-westerly section. Satisfactory dissolved oxygen contents of 104 to 112% saturation were found throughout the lake except at Stations 17 and 18 where slightly lower values of 98 and 100% saturation, respectively, were noted.

The temperature during the POST survey, had fallen to a range of 17.4 to 17.9°C throughout the lake. The dissolved oxygen at the surface was within the range of 98 to 111% saturation except at Station 17 where it was 69% saturation. Lower dissolved oxygen values (98% approx.) were evident along the west shore north of Station 17.

The pH in the surface water during the fall survey ranged between 7.9 and 8.4. The lowest value of 7.9 was found at Station 17.

The anomalous results in the vicinity of Station 17 are probably due to the small watercourse entering the lake nearby. Since the lake empties at Station 20, then the flows in the small watercourse would

tend to affect the quality of water at Stations 18, 19 and 20.

Dissolved oxygen and temperature depth profiles were recorded at Stations 2 and 6 on July 9 during the MID survey. At both stations (see Figure 1) the temperature was nearly uniform with the difference between top and bottom being only 0.5°C. Hence, no thermal stratification existed. The dissolved oxygen exceeded 100% saturation at all depths except quite near the bottom where sharp declines to 16% or lower were observed. Such nearly anoxic conditions are attributed to the decomposition of the bottom muds observed during the survey. The results in Table II for the depth samples collected at Stations 2 and 6 on July 5 are harmonious with the above excepting dissolved oxygen at Station 2; the high dissolved oxygen at Station 2 probably occurred as a result of not collecting the depth sample as close to the lake bottom as other samples.

No profiles were taken during the POST survey; however, the depth samples collected each day at Stations 2 and 6 provide some meaningful information. As found during the MID survey, the maximum difference between top and bottom waters was 0.5°C, again showing no thermal stratification in Bass Lake. At Station 6, the dissolved oxygen began to decline below a depth of 12 feet from the surface and ranged between 56% and 76% at a depth of 14 feet.

At Station 2, the decline in dissolved oxygen occurred at a depth of 20 feet from the surface; at a depth of 24 feet the dissolved oxygen was 72% saturation but was 30% between 26 and 30 feet below the surface. The oxygen depletion noted in the bottom is also attributed to decaying matter on the lake bottom.

Although a natural occurrence in many lakes, no thermal stratification was found during each survey. This is attributed to wind's mixing the waters of this shallow lake thereby breaking down any stratification before it could be definitely established.

CHEMISTRY

The laboratory results pertaining to the chemical samples are summarized in Table III (MID survey) and Table IV (POST survey).

The MID survey results showed a generally satisfactory water. Free ammonia and total kjeldahl nitrogens varied from .02 to .06 ppm and from 0.35 to 0.56 ppm respectively. The total and soluble phosphorus averaged .015 ppm and .003 ppm respectively. Higher values than usual were noted at Station 8 (0.15 ppm free ammonia) and 1600 feet south-east of Station 9 (.010 ppm soluble phosphorus). The nitrite nitrogen varied from .002 to .011 ppm with an average of .006 ppm.

The chemical analyses of the MID survey samples also showed the water to be moderately hard with a hardness between 140 and 142 ppm which is slightly in excess of that in Lake Ontario. Calcium and magnesium contents were approximately 39 ppm and 11 ppm, respectively. The chloride content was low as was the iron content. The conductivity varied generally from 255 to 270 micromhos per cm^3. Higher than usual values were noted at Station 13 (1.10 ppm iron) on July 7, and at Station 18 on July 6 (154 ppm hardness, 45 ppm calcium, conductivity of 291 micromhos per cm^3 and 149 ppm alkalinity). The reason(s) for the foregoing differences is not evident; however, the higher values at Station 18 may be due to the stream discharge near Station 17.

The POST survey results indicated little or no change from the MID survey with regard to free ammonia, total kjeldahl, and nitrate nitrogen. However, the nitrite nitrogen decreased to 0.003 ppm. While no change in soluble phosphorus was detected, the total phosphorus decreased slightly to approximately .010 ppm at all stations except at the lake outlet where the content approximated that found in the MID survey. No marked change appeared in organic carbon, iron, magnesium, chlorides, alkalinity and conductivity. The calcium

content and hence the hardness decreased very slightly at all stations except Station 20, the lake outlet.

The daily sampling during the fall survey showed that the lake had uniform water quality except for the lake outlet where slight increases in some mineral parameters (calcium, hardness, alkalinity) were observed.

Prepared by: .....
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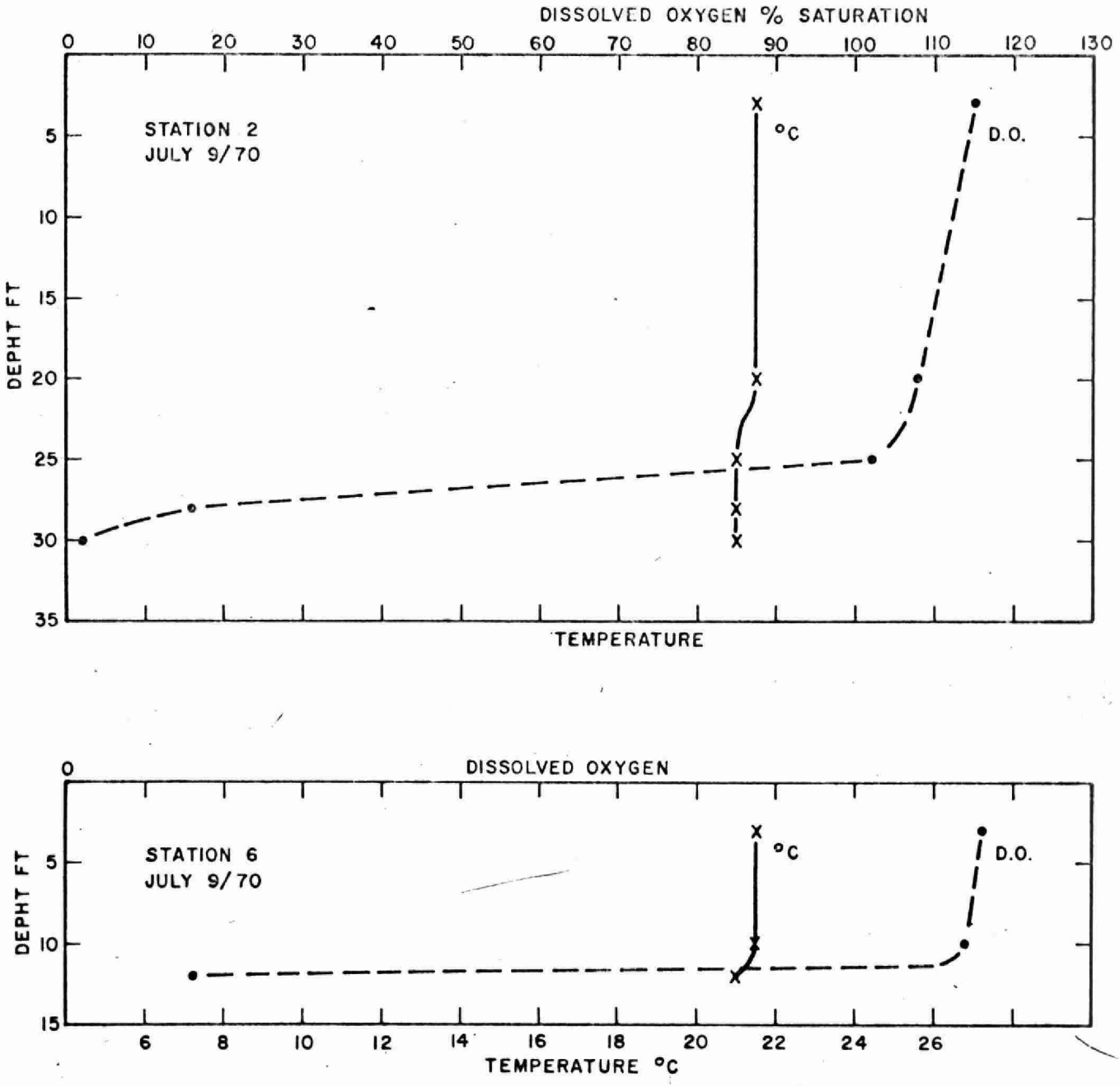
Reference:

HORSNELL, G. and A. BURGER June, 1971. Bacteriological Water Quality of Bass Lake. Ontario Water Resources Commission, Division of Laboratories, Bacteriology Branch. Internal report.



BASS LAKE

FIGURE 1

TABLE II

BASS LAKE

July 5 - 9, 1970
September 24 - 27, 1970

STATION	GEOMETRIC MEAN PER 100 ML TOTAL COLIFORMS	FECAL COLIFORMS	FECAL STREP.	NO. OBSERV.	DISS. OXYGEN % SAT.	TEMPERATURE o CENT.	pH
11	60	9	76 (2)	5	107	20.0	-
	575	3	14	4	104	17.4	8.3
12	78	10	15 (4)	5	110	20.0	-
	370	4	38	4	105	17.4	8.0
13	163	14	15 (4)	5	106	20.1	-
	499	2	4	4	99	17.7	8.2
14	148	8	54 (4)	5	112	20.2	-
	568	3	16	4	102	17.7	8.1
1	36	2	28	5	109	19.7	-
	408	1	2	4	107	17.7	8.4
2	34	2	12	5	108	20.0	-
	643	1	2	4	111	17.7	8.3
2D	100	-	-	1	104	20.0	-
	901 (2)	1	4	4	---	----	-
3	62	7	29	5	107	19.9	-
	389	2	5	4	112	17.9	8.3
10	198	5	171	5	106	19.8	-
	453	1	12	4	105	17.5	8.1
15	136	2	32 (3)	5	108	19.4	-
	498	2	6	4	101	17.6	8.1
9	102	10	38 (2)	5	107	19.7	-
	602	2	12	4	105	17.6	8.2
8	190	7	83 (3)	5	107	19.8	-
	291	3	79	3	101	17.5	8.2

TABLE II

BASS LAKE - July 5 - 9, 1970
September 24 - 27, 1970

STATION	GEOMETRIC MEAN PER 100 ML TOTAL COLIFORMS	FECAL COLIFORMS	FECAL STREP.	NO. OBSERV.	DISS. OXYGEN % SAT.	TEMPERATURE ° CENT.	pH
7	128	3	107 (3)	5	108	19.6	-
	308	1	60	4	106	17.6	8.3
6D	110	4	--	1	58	19.5	-
	504	1	3	4	78	17.6	7.5
6	88 (4)	5	31 (3)	5	107	19.4	-
	511	1	19	4	102	17.6	8.2
5	95	4	6 (3)	5	105	19.5	-
	558	1	3	4	104	17.5	8.2
4	51	4	6 (3)	5	109	19.2	-
	334	2	40	4	101	17.4	8.2
16	69	2	44 (3)	5	105	19.3	-
	581	2	31	4	100	17.5	8.1
17	126 (4)	5	47 (2)	5	98	19.4	-
	2700 (1)	8	14	4	69	17.4	7.9
18	235	4	51 (3)	5	100	19.6	-
	1543 (3)	2	209	4	98	17.4	8.2
19	161 (4)	7	19 (3)	5	110	20.1	-
	395 (3)	3	156	4	99	17.4	8.1
20	169	4	21 (3)	5	108	19.9	-
	394	2	173	4	98	17.4	8.2

Note: Figure in bracket denotes number of observations if different from that of other parameters.

TABLE III

BASS LAKE - CHEMICAL RESULTS

July 5 - 9, 1970

SAMPLING POINT	DATE	NITROGEN AS N				PHOSPHORUS AS P		IRON	ORGANIC	HARDNESS
		FREE AMMONIA	TOTAL KJELDAHL	NITRITE	NITRATE	TOTAL	SOLUBLE	as Fe	CARBON	As $CaCO_3$
11	July 6	.04	.48	.010	< .01	.018	.002	< .05	6	140
12	July 8	.04	.45	.003	< .01	.016	.003	.05	8.5	140
13	July 7	.03	.47	.009	< .01	.020	.002	1.10	6.5	142
14	July 6	.05	.49	.009	< .01	.018	.002	.05	6.5	142
	July 9	.05	.54	.002	< .01	.017	.004	.05	7.5	146
2	July 5	.02	.55	.005	< .01	.026	.002	.05	7	140
	July 9	.06	.38	.002	< .01	.012	.006	.05	8	140
3	July 7	.03	.48	.010	< .01	.016	.002	.05	6.5	140
10	July 8	.06	.35	.003	< .01	.013	.002	.05	10	140
15	July 7	.03	.45	.008	< .01	.009	.002	.05	8	142
9A*	July 5	.01	.53	.006	.01	.014	.010	.05	7	140
9	July 7	.03	.42	.008	< .01	.012	.002	.05	6.5	142
8	July 9	.15	.46	.003	< .01	.013	.003	.05	8	142

TABLE III (Cont'd)

BASS LAKE - July 5 - 9, 1970

SAMPLING POINT	DATE	NITROGEN AS N				PHOSPHORUS AS P		IRON	ORGANIC	HARDNESS
		FREE AMMONIA	TOTAL KJELDAHL	NITRITE	NITRATE	TOTAL	SOLUBLE	as Fe	CARBON	as $CaCO_3$
6	July 5	< .01	.47	.006	.01	.016	.004	.05	9.5	140
5	July 8	.05	.37	.003	< .01	.014	.001	<.05	7.5	142
4	July 6	.04	.40	.011	< .01	.015	.002	.05	6.5	142
18	July 6	.04	.56	.010	< .01	.016	.002	.10	10	154
	July 9	.06	.40	.002	< .01	.015	.002	.05	8.5	146
19	July 8	.04	.38	.003	< .01	.014	.002	.05	10	142
20	July 5	.06	.48	.009	.03	.015	.004	.10	7.5	142

* Located 1600 feet southeast of Station 9

Note: All results in ppm except where otherwise indicated.

TABLE III

BASS LAKE - CHEMICAL RESULTS

July 5 - 9, 1970

SAMPLING POINT	DATE	ALKALINITY as $CaCO_3$	CALCIUM as Ca	MAGNESIUM as Mg	CHLORIDE as Cl	TURBIDITY in Units	CONDUCTIVITY in Micromhos per cm^3
11	July 6	135	40	10	3	2	256
12	July 8	136	38	11	2	4	270
13	July 7	135	41	10	3	2	266
14	July 6	176	40	10	3	2	267
	July 9	134	38	12	2	4	255
2	July 5	133	39	10	3	2	261
	July 9	134	39	10	2	3	255
3	July 7	134	40	10	2	3	269
10	July 8	137	38	11	2	4	270
15	July 7	135	41	10	2	2	270
9A*	July 5	134	39	10	3	2	267
9	July 7	135	41	10	3	2	268
8	July 9	137	39	12	3	4	262

TABLE III (Cont'd)

BASS LAKE - July 5 - 9, 1970

SAMPLING POINT	DATE	ALKALINITY as $CaCO_3$	CALCIUM as Ca	MAGNESIUM as Mg	CHLORIDE as Cl	TURBIDITY in Units	CONDUCTIVITY in Micromhos per cm^3
6	July 5	134	40	10	3	3	250
5	July 8	135	40	10	2	3	269
4	July 6	135	40	10	3	2	270
18	July 6	149	45	10	3	2	291
	July 9	138	38	12	2	4	262
19	July 8	135	40	10	3	3	267
20	July 5	134	39	11	3	2	260

* Located 1600 feet south-east of Station 9

Note: All results in ppm except where otherwise indicated.

TABLE IV

BASS LAKE - CHEMICAL RESULTS

September 24 - 27, 1970

SAMPLING POINT	DATE	NITROGEN AS N				PHOSPHORUS AS P		IRON	ORGANIC	HARDNESS
		FREE AMMONIA	TOTAL KJELDAHL	NITRITE	NITRATE	TOTAL	SOLUBLE	As Fe	CARBON	as $CaCO_3$
12	Sept. 24	.02	.42	.003	< .01	.005	.002	.05	5.5	138
	Sept. 25	.05	.45	.003	< .01	.006	.001	< .05	4.5	136
	Sept. 26	.02	.50	.002	< .01	.014	.001	.10	11.0	138
	Med.	.02	.45	.003	< .01	.006	.001	.05	5.5	138
	Max.	.05	.50	.003	< .01	.014	.002	.10	11.0	138
	Min.	.02	.42	.002	< .01	.005	.001	< .05	4.5	136
2	Sept. 24	.03	.44	.003	< .01	.008	.004	< .05	4.5	140
	Sept. 25	.03	.45	.003	< .01	.006	.001	< .05	7	138
	Sept. 26	.02	.34	.002	< .01	.012	.002	.05	11	136
	Sept. 27	.03	.41	.002	< .01	.011	.003	.10	10.5	136
	Med.	.03	.43	.003	< .01	.010	.003	.05	9	138
	Max.	.03	.45	.003	< .01	.012	.004	.10	11	140
	Min.	.02	.34	.002	< .01	.006	.001	< .05	4.5	136

Note: All results in ppm except where otherwise indicated.

TABLE IV (Cont'd)

BASS LAKE - September 24 - 27, 1970

SAMPLING POINT	DATE	NITROGEN AS N				PHOSPHORUS AS P		IRON	ORGANIC	HARDNESS
		FREE AMMONIA	TOTAL KJELDAHL	NITRITE	NITRATE	TOTAL	SOLUBLE	as Fe	CARBON	as $CaCO_3$
4	Sept. 24	.03	.37	.003	< .01	.008	.002	.05	5	142
	Sept. 25	.03	.43	.004	< .01	.007	.001	< .05	6.5	138
	Sept. 26	.03	.45	.002	< .01	.013	.001	.05	14	140
	Sept. 27	.02	.53	.002	< .01	.013	.002	.05	10.5	136
	Med.	.03	.44	.003	< .01	.011	.002	.05	8.5	139
	Max.	.03	.53	.004	< .01	.013	.002	.05	14	142
	Min.	.02	.37	.002	< .01	.007	.001	< .05	5	136
20	Sept. 24	.03	.44	.003	< .01	.008	.002	< .05	4.5	140
	Sept. 25	.03	.46	.004	< .01	.017	.005	.10	4.5	148
	Sept. 26	.02	.47	.002	< .01	.011	.001	.10	12	142
	Sept. 27	.01	.47	.002	< .01	.026	.003	.10	13.5	142
	Med.	.02	.46	.003	< .01	.014	.003	.10	8	142
	Max.	.03	.47	.004	< .01	.026	.005	.10	13.5	148
	Min.	.01	.44	.002	< .01	.008	.001	< .05	4.5	140

Note: All results in ppm except where otherwise indicated.

TABLE IV

BASS LAKE - CHEMICAL RESULTS

September 24 - 27, 1970

SAMPLING POINT	DATE	ALKALINITY as $CaCO_3$	CALCIUM as Ca	MAGNESIUM as Mg	CHLORIDE as Cl	TURBIDITY in Units	CONDUCTIVITY in Micromhos per cm^3
12	Sept. 24	133	38	10	2	2	268
	Sept. 25	132	38	10	2	2	266
	Sept. 26	135	38	10	2	3	268
	Med.	133	38	10	2	2	268
	Max.	135	38	10	2	3	268
	Min.	132	38	10	2	2	266
2	Sept. 24	132	38	11	3	1.5	268
	Sept. 25	132	38	13	2	2	266
	Sept. 26	134	38	10	2	3	266
	Sept. 27	134	38	10	6	3	265
	Med.	133	38	11	3	2	266
	Max.	134	38	13	6	3	268
	Min.	132	38	10	2	1.5	265

Note: All results in ppm except where otherwise indicated.

TABLE IV (Cont'd)

BASS LAKE - September 24 - 27, 1970

SAMPLING POINT	DATE	ALKALINITY as $CaCO_3$	CALCIUM as Ca	MAGNESIUM as Mg	CHLORIDE as Cl	TURBIDITY in Units	CONDUCTIVITY in Micromhos per cm^3
4	Sept. 24	136	40	10	3	2	276
	Sept. 25	134	38	13	2	2	272
	Sept. 26	136	39	10	3	3	272
	Sept. 27	134	38	10	3	3	264
	Med.	135	39	10	3	3	272
	Max.	136	40	13	3	3	276
	Min.	134	38	10	2	2	264
20	Sept. 24	135	39	11	2	4	272
	Sept. 25	141	42	11	2	2	284
	Sept. 26	138	41	10	2	3	272
	Sept. 27	140	40	10	3	3	273
	Med.	141	41	11	2	3	273
	Max.	141	42	11	3	4	284
	Min.	135	39	10	2	2	272

Note: All results in ppm except where otherwise indicated.

PRICES CORNER

NORTH RIVER

ORILLIA TOWNSHIP

HIGHWAY 12

ORO TOWNSHIP

BASS LAKE

DEPT. OF LANDS AND FORESTS CAMPSITE.

20	128	3	107
	308	1	60
8	190	7	83
	291	3	79
9	102	10	38
	602	2	12
10	198	5	171
	453	1	12
3	34	2	12
	643	1	2
	BOTTOM		
	100	-	-
	901	1	4
2	62	7	29
	389	2	5
11	60	9	76
	575	3	14
12	78	10	15
	370	4	38
13	163	14	15
	499	2	4
14	148	8	54
	568	3	16
1	36	2	28
	408	1	2
15	136	2	32
	498	2	6
19	161	7	19
	395	3	156
18	169	4	21
	394	2	173
17	235	4	51
	1543	2	209
16	126	5	47
	2700	8	14
7	69	2	44
	581	2	31
6	88	5	31
	511	1	19
	BOTTOM		
	110	4	-
	504	1	3
5	95	4	6
	558	1	3
4	51	4	6
	334	2	40

LEGEND

GEOMETRIC MEAN DENSITY PER 100 ML.			
SURVEY DATES	TOTAL COLIFORMS	FECAL COLIFORMS	FECAL STREP
JULY 5-9	126	5	47
SEPT 24-27	2700	8	14

(10) ● SAMPLING POINT

STATUTE MILES

0 1/4 1/2 3/4 1

ONTARIO WATER RESOURCES COMMISSION

1970 RECREATIONAL LAKES PROGRAM

BASS LAKE

SCALE: AS SHOWN	
DRAWN BY: A. J. H.	DATE: FEBRUARY 1971
CHECKED BY: R.C.M.	DRAWING NO: 71-14-DE